

## SMOKE GENERATOR CARTRIDGE FOR FOOD PROCESSING

This invention relates to processing foods, and more particularly to a disposable smoke generating cartridge for supplying smoke for hot or cold smoking food.

### BACKGROUND OF THE INVENTION

When preparing food, such as on a barbecue grill, it is well known to add wetted wood chips to the fire to generate smoke that enhances the flavor of the food. As the wet wood smolders, it generates smoke, and also dries out. The dry wood then burns with little or no smoke. U. S. Patent #3,347, 148 issued Oct. 17, 1967 to Williams discloses a wood chips packed cylinder made of a fine metal mesh that acts as a flame arrester to prevent the wood from bursting into flames. No facilities are provided for refilling the cylinder. U. S. Patent # 4,934,272 issued June 19, 1990 to Sternin et al. discloses a combustible cylinder made of rice paper packed with sawdust of a particular particle size that is designed to smolder like a cigar, independent of the heat from the barbecue. The cylinder is designed to burn from one end to the other suspended in a ring. The entire cylinder is within a moving air stream with the air then moving into the barbecue. U. S. Patent # 5,048,406 issued Sept. 17, 1991 to Cofer discloses a perforated cylinder of a non combustible material packed with small wood particles designed to char and smoke when resting on burning coals of a barbecue. The empty cylinder is cooled and disposed of after use.

It is difficult to get a controlled uniform smoke emission over a period of time from the apparatus of the prior art, and to add fuel while in continuous operation. It would be useful to have a cartridge that would emit wood smoke continuously when lit without bursting into flame or requiring the cooking fire to maintain the smoking condition.

### SUMMARY OF THE INVENTION

It is accordingly an object of the invention to provide a prefilled cartridge assembly that would supply a continuous supply of wood smoke when ignited. It is yet another object that the assembly have a reusable cartridge holder that supports disposable cartridges prefilled with material that emits a continuous controlled wood smoke. It is yet another object that the assembly have a reusable cartridge that is easily lit and continues to emit smoke independent of an external heat source once ignited.

These and other objects, features, and advantages of the invention will become more apparent when the detailed description is studied in conjunction with the drawings in which like elements are designated by like reference characters in the various drawing figures.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front elevation view of the cartridge assembly of the invention.

Fig. 2 is a perspective view of the cartridge.

Fig. 3 is a perspective view of the cartridge holder.

Fig. 4 is a sectional view thorough line 4-4 of Fig. 1.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to the drawing figures, the smoke generating assembly 1 of the invention includes a disposable, smoke generating cartridge 2 prefilled with wood pellets 10 that emit smoke with desirable flavor properties for food processing such as barbecue cooking when smoldering. The cartridge is held in a reusable cartridge holder 12 that is preferably positioned away from the burning coals but where the smoke will permeate the food. The cartridge holder 12 is made of a non-combustible material such as metal or ceramic.

The cartridge 2 has an outer covering 18 that defines and securely encloses a chamber 3 with a central axis 4. The outer covering 18 include a top portion 5 provided with multiple perforations 6 to permit free emission of smoke therethrough. The top portion may be made of sheet metal, screening, or the like, with a descending rim 14. An imperforate annular band attached to the top portion forms the upper portion 7 of the covering. This may be made of an inexpensive material such as cardboard. An imperforate bottom portion 8 is attached to the bottom of the upper portion. It may be composed of a readily combustible material, such as, but not limited to, paper pulp impregnated with a combustion supporting material such as a nitrate salt. Potassium nitrate impregnated paper pulp has been found to be readily set afire by a match.

The contents of chamber 3 include at the bottom a portion of tinder material 9 such as nitrate impregnated wood chips. Above the tinder material 9, the balance of the chamber is filled with wood pellets 10. These pellets are well known in the art. They generally consist of sawdust from a wood that has aromatic smoke such as hickory. The sawdust is compressed, often with a binder, to form elongate pellets that smolder and emit a desirable smoke when ignited. The

shape of the pellets results in the formation of a plurality of interconnected free interstitial spaces 11 around the pellets that permit the free flow of oxygen and smoke therethrough.

When the cartridge 2 is inserted into the cartridge holder 12 through its open top 13 as shown, the rim 14 of the cartridge is too large to pass through the open top, so that it engages the top 13 of the holder. This cartridge is thereby held in position with the central axis of the chamber vertical. An imperforate upper section 15 of the holder closely encloses the upper portion 7 of the cartridge to shield it from combustion. The lower section 16 of the holder is provided with large openings 17 to freely admit oxygen and a lighted match, or the like. When a fire is applied to the bottom portion 7, it readily burns. It in turn sets the tinder afire. This in turn ignites the pellets. The pellets smolder and emit smoke. The hot smoke rises vertically, passing through perforation 6 and to the food. The convection currents bring oxygen through openings 17. A smoke current is provided without the need for a forced air apparatus. The pellets smolder and produce a continuous stream of smoke for a prolonged period.

Although the bottom portion 8 and the tinder 9 burn away, the pellets do not fall through. They swell from the heat and moisture released by the burning paper pulp and tinder, pressing them together and against the upper portion, while still leaving adequate interstitial spaces for smoke production and flow.

While I have shown and described the preferred embodiments of my invention, it will be understood that the invention may be embodied otherwise than as herein specifically illustrated or described, and that certain changes in form and arrangement of parts and the specific manner of practicing the invention may be made within the underlying idea or principles of the invention.